REMARKS

Reconsideration and allowance are requested.

As a preliminary matter, the Examiner is requested to (1) provide an initialed copy of the IDS form submitted on December 19, 2005, (2) initial the Initial Search Report "other document" submitted with the July 7, 2004 IDS, and (3) initial the final "other document" entry to Chow et al. submitted with the May 6, 2004 IDS.

Claims 1, 2, 4-6, 11-13, 20, 21, 23, 24, 25, 34, and 35 stand rejected under 35 U.S.C. §102(b) for anticipation based on an article by one of the inventors Peter Larsson. Claims 1-5, 7, 11-12, 15, 20-24, 26, 30, 34, and 35-37 stand rejected under 35 U.S.C. §102(b) for anticipation based on Brommer. These rejections are respectfully traversed.

The amended claims are similar to now-granted claims in the corresponding European Patent Application 04721406.9. Example support for the claim amendments can for example be found in original claims 1 and 15, original claims 20 and 30, the description on page 8, lines 6-14, from page 15, line 4 to page 16, line 25, the particular example from page 16, line 27 to page 20, line 30 in connection with Fig. 4, as well as the discussion from page 23, line 17 to page 24, line 7, and pages 26-29.

The independent claims relate to multi-hop forwarding of information where information is transmitted over multiple hops between source and destination instead of directly in a single hop. The multi-hop approach offers several advantages such as lower power consumption and higher information throughput compared to a direct one-hop approach. Nodes out of reach from each other can benefit from intermediately located nodes that can forward their messages from the source towards the destination. The amended independent claims integrate multi-user detection

and diversity forwarding exploiting not only the powerful combination of contention-based forwarding and multi-user detection (MUD) in a multi-hop network, but also exploiting the diversity enabled by the existence of multiple candidate relay nodes. The result is a unique and highly effective solution that allows prioritization among packets from multiple transmitting nodes on the receiving/relay side as well as prioritization among multiple candidate relay nodes on the transmitting side. The combination in a multi-hop network of contention-based forwarding, multi-user detection (MUD), and multiple relay node diversity involving both packet prioritization and candidate relay node prioritization provides synergetic effects in the forwarding process not achievable in the applied Larsson and Brommer references.

Larsson describes selection diversity forwarding lacks a teaching of using Multi-User Detection (MUD) or prioritization among multiple correctly decoded packets. The SDF in Larsson only considers a scenario with a single transmitting node sending the same information to a set of candidate relays. Information from multiple transmitting nodes is not decoded in a receiving relay node. Nor is there any prioritization among multiple decoded packets at the receiving relay node.

For contention-based forwarding in a multi-hop network, the ability to prioritize among decoded packets from a plurality of different transmitting nodes permits opportunistic routing (e.g., exploiting up-fading peaks) to boost the overall forwarding in the multi-hop network. Prioritizing allows selection of the most suitable packet which can optimize the multi-hop routing process. For example, packets leading to high forward progress may be prioritized and selected. High forward progress means that a packet spends less time in the network, which leads to reduced delay, and once forwarded, frees up radio resources for other traffic.

Brommer is not related to a multi-hop network. Instead, Brommer teaches a multi-user scenario in which the medium is spatially reused by several parallel transmitter-receiver links. Each transmitting user (source) only sends to a single intended receiver (destination). An intended receiver may use multi-user detection to recover its own message from the interference of other transmitter-to-receiver links. Each transmitter user has a message it wants to send to a specific receiver, and the receiver is just interested in its own intended message.

In a multi-user network that includes a plurality of modems, Brommer also discloses a modem designated as a polling point coordinator access point (AP), which receives wirelessly transmitted signals and has a multi-user detection (MUD) module to detect K signals, and a demultiplexer that selects a data signal m as the signal of interest. The signal m is then provided to user m associated with the modem. But Brommer's multi-user detection is not concerned with a multi-hop network in which relay nodes try to decode multiple packets and perform a packet prioritization process to select one or more of the correctly decoded packets suitable for forwarding on in the multi-hop network. Brommer simply uses MUD to discriminate a specific intended message from the interference of other user-pairs sharing the same medium.

Brommer lacks a transmitter sending its data packet signal to multiple relay nodes for the purpose of prioritizing among the relay nodes. On the contrary, in Brommer, although there may be multiple communicating user-pairs at the same time, each user intends to send only to one specific receiver, as explained above. So there is no need for any node prioritization process because of the one-to-one correspondence between transmitter and receiver, (i.e., parallel transmitter-receiver pairs sharing the same medium) in Brommer.

Further, Brommer does not send forwarding orders after data has been sent and acknowledged. Instead, Brommer utilizes a polling period with Request-To-Send (RTS) and

Clear-To-Send (CTS) signaling prior to the data transmission. In accordance with the method of claim 1, data can be (and preferably is) transmitted directly without any preceding RTS and CTS signaling. After acknowledgments (ACKs) from relay candidate nodes and the following prioritization process in which one or more suitable relay nodes is/are selected, a corresponding forwarding order is sent to instruct each selected relay node to take on responsibility for forwarding the data packets to the next node along path to the destination node. There is no need for any forwarding orders (FO) in the multiuser network of Brommer, since the ACK indicates that the data has reached the intended user (destination). Forwarding a data packet to the next node in a multi-hop network is not relevant in Brommer since the packet has already reached its final destination in a single hop.

None of the secondary references applied by the Examiner overcome these deficiencies in Brommer. The application is in condition for allowance. An early notice to that effect is requested.

Respectfully submitted,

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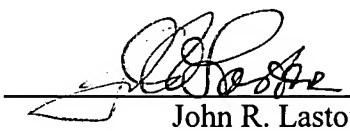
By: 
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